

WHAT IS CLAIMED IS:

5 1. A virtual local area network (VLAN) classification system for a switching node characterized in that an inbound packet having a VLAN identifier is assigned to a VLAN in accordance with a classification mode selectable from ones of classification modes.

10 2. The VLAN classification system of claim 1 further characterized in that one of the selectable ones of classification modes causes the inbound packet to be assigned to a VLAN associated with the VLAN ID from the packet.

15 3. The VLAN classification system of claim 1 further characterized in that one of the selectable ones of classification modes causes the inbound packet to be assigned to a VLAN associated with an ingress port.

20 4. The VLAN classification system of claim 1 further characterized in that one of the selectable ones of classification modes causes the inbound packet to be assigned to a VLAN associated with a protocol type of the packet.

25 5. A virtual local area network (VLAN) tagging system for a switching node characterized in that a VLAN ID in an outbound packet is modified or not in accordance with a tagging mode selectable from ones of tagging modes.

30 6. The VLAN tagging system of claim 5 further characterized in that one of the selectable ones of tagging modes causes the VLAN ID in the outbound packet to be retained as received.

35

7. The VLAN tagging system of claim 5 further characterized in that one of the selectable ones of tagging modes causes the VLAN ID in the outbound packet to be replaced with a VLAN ID to which the outbound packet is classified at inbound.

8. The VLAN tagging system of claim 5 further characterized in that one of the selectable ones of tagging modes causes the VLAN ID from the outbound packet to be removed without substitution.

9. A switching node having a plurality of ports interconnected across a switching link, characterized in that a first one of the ports has a first VLAN classification mode operative thereon, further characterized in that a second one of the ports has a second VLAN classification mode operative thereon, wherein the first and second VLAN classification modes are different.

10. The switching mode of claim 9, further characterized in that the first and second VLAN classification modes are operative on inbound packets.

11. A switching node having a plurality of ports interconnected across a switching link, characterized in that a first one of the ports has a first VLAN tagging mode operative thereon, further characterized in that a second one of the ports has a second VLAN tagging mode operative thereon, wherein the first and second VLAN tagging modes are different.

12. The switching node according to claim 11, further characterized in that the first and second VLAN tagging modes are operative on outbound packets.

13. A virtual local area network (VLAN) classification system for a switching node including:

10 a memory for storing a VLAN classification mode selectable from ones of VLAN classification modes; and

an ingress port controller coupled to the memory, the ingress port controller receiving an inbound packet on an associated ingress port and assigning the inbound packet to a VLAN based on the stored VLAN classification mode.

14. The system of claim 13, wherein the inbound packet includes a VLAN identifier, and the stored VLAN classification mode causes the inbound packet to be assigned to a VLAN associated with the VLAN identifier.

15. The system of claim 13, wherein the stored VLAN classification mode causes the inbound packet to be assigned to a VLAN associated with the ingress port.

16. The system of claim 13, wherein the stored VLAN classification mode causes the inbound packet to be assigned to a VLAN associated with a protocol type of the packet.

17. The system of claim 13, wherein a first ingress port controller is coupled to a first memory for storing a first VLAN classification mode and a second ingress port controller is coupled to a second memory for storing a second VLAN

classification mode, wherein the first and second VLAN classification modes are different.

5

18. A virtual local area network (VLAN) tagging system for a switching node including:

a memory for storing a VLAN tagging mode selectable from ones of VLAN tagging modes; and

10 an egress port controller coupled to the memory, the egress port controller determining whether to retain a VLAN identifier in an outbound packet for transmission on an egress port based on the stored VLAN tagging mode.

15

19. The system of claim 18, wherein the stored VLAN tagging mode causes the VLAN identifier in the outbound packet to be retained.

20

20. The system of claim 18, wherein the stored VLAN tagging mode causes the VLAN identifier in the outbound packet to be replaced with a VLAN identifier to which the outbound packet is classified at inbound.

25

21. The system of claim 18, wherein the stored VLAN tagging mode causes the VLAN identifier in the outbound packet to be removed without substitution.

30

22. The system of claim 18, wherein a first egress port controller is coupled to a first memory for storing a first VLAN tagging mode and a second egress port controller is coupled to a second memory for storing a second VLAN tagging mode, wherein the first and second VLAN tagging modes are different.

35

23. In a data communication network including a switching
5 node receiving a data packet via an ingress port, a method for
classifying the data packet into a virtual local area network
(VLAN), the method comprising:

configuring for the ingress port a VLAN classification mode
selectable from ones of VLAN classification modes;

10 identifying a VLAN based on the selected VLAN
classification mode; and

associating the packet with the identified VLAN.

15 24. The method of claim 23, wherein the inbound packet
includes a VLAN identifier, and the configured VLAN
classification mode causes the inbound packet to be assigned to
a VLAN associated with the VLAN identifier.

20 25. The method of claim 23, wherein the configured VLAN
classification mode causes the inbound packet to be assigned to
a VLAN associated with the ingress port.

25 26. The method of claim 23, wherein the configured VLAN
classification mode causes the inbound packet to be assigned to
a VLAN associated with a protocol type of the packet.

30 27. The method of claim 23, wherein the switching node
includes a first ingress port having a first VLAN classification
mode configured therefor and a second ingress port having a
second VLAN classification mode configured therefor, wherein the
first and second VLAN classification modes are different.

28. In a data communication network including a switching node having an egress port, a method for processing an outbound packet having a virtual local area network (VLAN) identifier, the method comprising:

configuring for the egress port a VLAN tagging mode selectable from ones of VLAN tagging modes;

modifying or not the VLAN identifier in the outbound packet based on the configured VLAN tagging mode; and

transmitting the outbound packet via the egress port.

29. The method of claim 28, wherein the configured VLAN tagging mode causes the VLAN identifier in the outbound packet to be retained.

30. The method of claim 28, wherein the configured VLAN tagging mode causes the VLAN identifier in the outbound packet to be replaced with a VLAN identifier to which the outbound packet is classified at inbound.

31. The method of claim 28, wherein the configured VLAN tagging mode causes the VLAN identifier to be removed without substitution.

32. The method of claim 28, wherein the switching node includes a first egress port having a first VLAN tagging mode configured therefor and a second egress port having a second VLAN tagging mode configured therefor, wherein the first and second VLAN tagging modes are different.